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Strong Import Quarantine Urged

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JAMES C. MORTON

who was honored by having addition to Florida Citrus Mutual building dedicated to him on December 7.

(See Page 17)

VOL. 42 — NO. 1 JANUARY, 1961 BARTOW, FLORIDA

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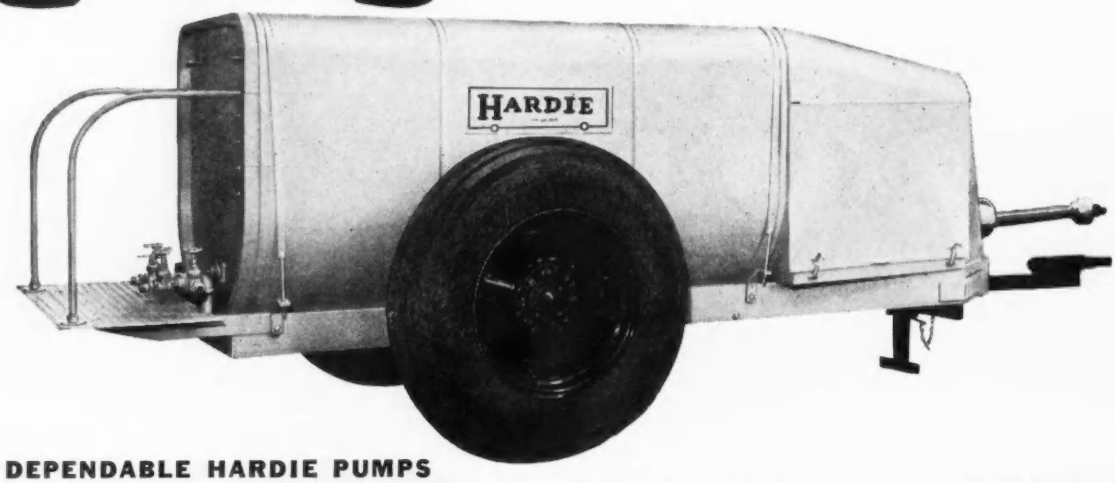

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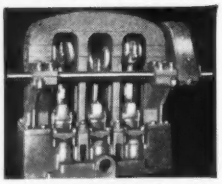

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Strong Import Quarantine Against Fruit Pests Urged

A strong quarantine program to prevent entry of new citrus and subtropical fruit pests into the United States has been urged by the U. S. Department of Agriculture's Citrus and Subtropical Fruit Research and Marketing Advisory Committee.

Committee members met first at Orlando to view the work of the Agricultural Research Service and the Agricultural Marketing Service underway at the U. S. Horticultural Field Laboratory. At Winter Haven the committee saw work in progress at USDA's Fruit and Vegetable Products Laboratory and the State Citrus Experiment Station at Lake Alfred nearby .At Miami the committee visited the U. S. Plant Introduction Station and the State Subtropical Experiment Station.

After viewing ARS plant quarantine efforts at Miami, committee members restated the need for continuous surveillance for foreign insect pests that might enter the country and threaten U. S. fruit crops.

Research proposals which committee members felt merited highest priority attention include:

FARM RESEARCH

Expanded research to speed development of more effective harvesting methods and equipment for citrus and subtropical fruits to reduce costs and aid in maintaining quality. In the field of entomology research, the committee recommended the initiation of Mediterranean fruit fly research in Central America, where the area infested by the fly is enlarging, and expanded research on the biological control of citrus fruit insects and mites by parasites, predators, and diseases.

UTILIZATION RESEARCH

Expanded basic research on the chemical constituents of citrus and subropical fruits, with special attention to the chemical changes occurring during pretreatment, processing, and handling that may change flavor, color, and odor. The committee felt fruit could be utilized more fully if new and improved products were developed from highly perishable fruits.

MARKETING RESEARCH

An expansion in research on postharvest decay and diseases of fruit was seen by the committee as a means of increasing the marketable life of fruit. Also, the group recommended establishment of better methods to measure and evaluate quality and maturity of fruit to provide more accurate grading and inspection.

MARKETING SERVICES

Committee members saw a need for help in the development of foreign markets. And, domestically, they recommended improved grade standards for fresh fruit and improved methods of obtaining crop estimates.

Established under the Research and Marketing Act of 1946, the committee is made up of national leaders from the citrus and subtropical fruit industry. Its detailed recommendations for research to be undertaken by USDA will be submitted formally to the Department within the next few weeks. Copies will be available from the committee's secretary, Dr. Roy Magruder, U.S.D.A., Washington 25, D. C.

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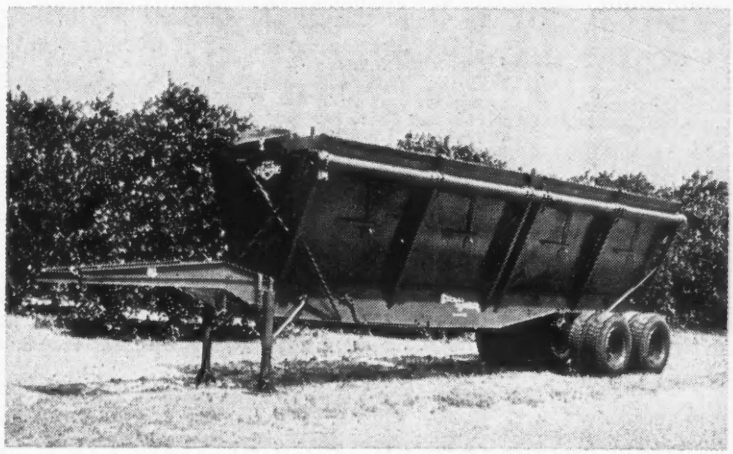

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How Effective Is Kepone Against Citrus Rust Mite?

Kepone, formerly designated CC-1189, was first tested against citrus rust mite, **Phyllocoptruta oleivora** (Ashm.) in the spring of 1957. This paper summarizes what has been learned during the past 3½ years about the effect of Kepone on populations of citrus rust mite as well as its compatibility with other materials.

The word Kepone is a trademark of Allied Chemical Corporation. It is used to designate the chemical 1,2 decachloroococtehydre-1,3,4-metheno-2H-cyclobuta [cd] pentalen-2-one, a chlorinated aryl hydrocarbon for which there is no common name. Although Kepone has been available as a liquid, only wettable powder formulations that contained 50 percent active ingredients were tested.

Methods

All treatments in all experiments were applied with a conventional hydraulic sprayer, drawn and powered by a tractor. This sprayer was equipped with two double Boyce guns and operated at about 600 p.s.i. at the pump. Sprays were invariably applied to the point of run-off with no special effort made to obtain coverage of limbs and inside foliage.

The density of citrus rust mite populations on leaves or fruit before spraying and at intervals after spraying was determined for each plot in the following manner: one lens field on the unexposed surface of leaves and fruit and a similar field on the exposed surface was emamined for live rust mite with a 10X hand lens. If one or more live rust mite occurred in a lens field, the leaf for fruit was considered infested. Twenty-five leaves and/or fruit per tree were inspected for rust mite at each examination.

Kepone is not yet registered for use on bearing citrus trees and should not be used where fruit is present.

BY ROGER B. JOHNSON
UNIVERSITY OF FLORIDA CITRUS EXPERIMENT STATION
LAKE ALFRED

Preliminary Experiments in 1957 and 1958

Kepone was first tested in the laboratory by dipping infested leaves in water that contained 1.0 pound of Kepone 50W per 100 gallons. This resulted in only a moderate mortality of citrus rust mite, but enough to warrant a modest grove trial. Accordingly, four Pineapple orange trees were sprayed with Kepone on May 27, 1957, when about 50 percent of the leaves and fruit were infested and the rust mite population was increasng rapidly. Kepone required about 3 weeks to reduce the mite population to the 10 percent level whereas no citrus rust mite was found on adjoining trees only 4 days after they had been sprayed with sulfur. A more striking contrast between Kepone and sulfur occurred between 3 and 7 weeks after application. Citrus rust mite multiplied rapidly on sulfured trees, but remained at a low level where Kepone had been applied (Figure 1).

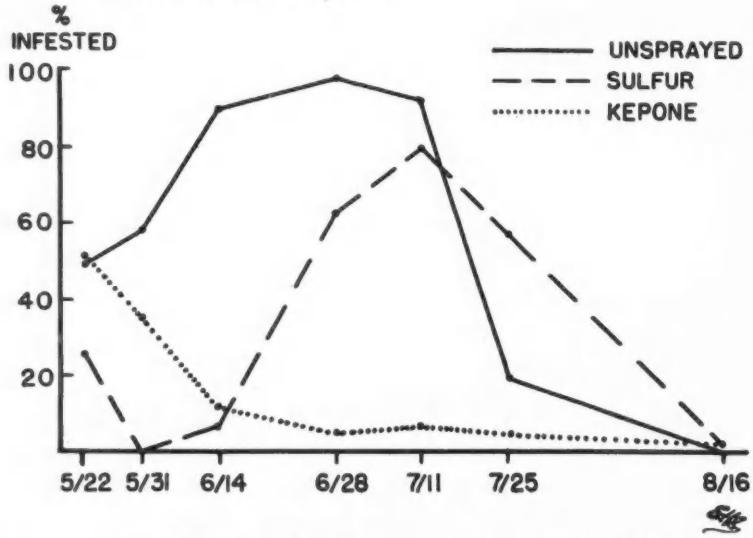
These data showed that Kepone would be of little use against citrus rust mite where a quick mortality was

Presented at Florida State Horticultural Society annual meeting, Tampa, October 1960. JS-1151.

required or expected, but suggested that the material would be of value if its latent effect could be put to use. The best way to accomplish this appeared to be to apply Kepone before a population increase occurred. Accordingly, an experiment was undertaken to test this theory in a second block of Pineapple orange at Lake Alfred.

Sprays were first applied April 21, 1958, when sampling revealed no citrus rust mite on any of the trees and again on July 31 when the mites had become fairly numerous.

FIG. I– RUST MITE ON LEAVES & FRUIT AFTER SPRAYING MAY 27, 1957



The results of this experiment showed no difference in rust mite control between 0.5, 1.0 and 2.0 pounds of Kepone. Furthermore, all three amounts were as effective against citrus rut mite and prevented russet as much as did zineb (Table 1).

1959 Experiment

In 1959 a complex experiment compared two amounts of Kepone 50W with zineb in a variety of spray programs. The primary purpose of this experiment was to better determine the dosage of Kepone 50W that would compare most favorably with zineb against citrus rust mite. Its secondary purpose was to determine the compatibility and effectiveness of Kepone with emulsified oil, parathion, neutral zinc, basic copper sulfate, and combinations of these materials.

A split-plot design with 5 replicates, each containing 6 main plots, was used in a grove of Valencia orange near Haines City. Main plots consisted of 16 trees arranged in 2 rows and were divided into 8 sub-plots of 2 trees each. The main spray programs used on the main plats in post-bloom, summer and fall sprays are shown in Table 3. The sub-programs used with each of the main programs on the sub-plots were: 1) no treatment; 2) 10.0 ounces of 25 percent parathion per 100 gallons in post-bloom and summer sprays; 3) 1.0 gallon of 90 percent oil emulsion, post-bloom and summer; 4) 10.0 ounces of 25 percent parathion and 0.5 gallon of 90 percent oil emulsion, post-bloom and summer; 5) 2.0 pounds of neutral zinc in the post-bloom spray and 1.0 pound of 25 percent parathion in the summer; 6) 2.0 pounds of netural zinc in the post-bloom spray plus 10.0 ounces of 25 percent parathion, post-bloom and summer; 7) 2.0 pounds of neutral zinc in the post-bloom spray plus 1.0 gallon of 90 percent emulsified oil, post-bloom and summer; and 8) 2.0 pounds of neutral zinc in the post-bloom spray plus 10.0 ounces of 25 percent parathion and 0.5 gallon of 90 percent oil emulsion, post-bloom and summer. All plots received 0.5 pound of Tedion 25W per 100 gallons in September.

In this experiment, the population trend where citrus rust mite was not subjected to miticidal spray showed that each of the test applications was made under entirely different population conditions. Post-bloom sprays were applied when only about 2.2 percent of the leaves were infested but just prior to a sharp increase; summer sprays were applied when the rust mite population was very high but about to decline; while fall sprays were applied when the population was moderately high but decreasing rapidly. These differences not only account for the fact that all treatments gave their poorest control during the summer when rust mite was most numerous, but also account for the greater differences found between treatments during this interval. After the summer spray, 1.0 pound of Kepone was superior to 0.5 pound but neither was superior to 0.5 pound of zineb. After the post-bloom application, however, there was no difference between zineb and either amount of Kepone. After the fall spray 0.5 pound of zineb and 1.0 pound of Kepone were equally satisfactory, but the lower dosage of Kepone was of no value.

Although 0.5 pound of Kepone was initially as satisfactory as zineb or 1.0 pound of Kepone, control became poorer with each successive application. On the other hand, 1.0 pound of Kepone remained as effective as zineb except during the summer when zineb lasted between one and two weeks longer (Table 2). These differences in rust mite control between zineb and Kepone although significant, were of little practical importance in terms of rust mite damage to fruit. All three treatments gave excellent control of russet due to citrus rust mite (Table 2).

Subtreatments, whether parathion, oil, neutral zinc, tribasic copper sulfate or combinations of these materials had no significant effect on control of citrus rust mite whether used alone or combined with zineb or Kepone.

A pronounced fruit burn was observed after application of the post-bloom sprays. No attempt was made to estimate the severity of the burn, but all trees were examined to determine which treatments had caused

Table 1. Control of citrus rust mite and prevention of russet with three amounts of Kepone applied April 21 and July 31, 1953.

Treatment in Pounds per 100 Gallons	Mean Number of Leaves and Fruit Infested With Citrus Rust Mitea,b		Mean Number of Russet Fruit on January 15, 1959b
	Leaves	Fruit	
Unsprayed	4.8	5.6	11.2
Sulfur, 10.0	4.6	4.1	4.2
65% zineb, 1.0	1.8	3.4	1.2
Kepone 50W, 0.5	2.4	2.5	1.5
Kepone 50W, 1.0	1.9	2.5	0.9
Kepone 50W, 2.0	2.3	3.8	2.3
L.S.D. (19:1)	1.1	1.1	3.1
(99:1)	1.5	1.5	4.2

aAverage of 3 mite counts made from June 6 to November 26, 1958.
bSamples of 25 leaves or fruit per tree.

the injury. This examination revealed no fruit burn on trees sprayed with Kepone or Kepone plus tribasic copper sulfate and/or neutral zinc. Furthermore, neither zineb, emulsified oil, parathion, neutral zinc, nor any combination of these materials were injurious. The burn was confined to plots sprayed with Kepone plus emulsified oil or the mixture of Kepone, oil and parathion.

The summer spray was applied when the summer growth was young and tender. No additional fruit burn was observed, but new shoots were damaged in some plots. On July 31, 1959, 20 terminal twigs per tree were examined for any sign of phytotoxicity. There was no injury from parathion, emulsified oil, zineb nor any combination of these materials, and phytotoxicity was negligible with either 0.5 or 1.0 pound of Kepone alone or combined with copper. This was also true where 0.5 pound of Kepone was used with oil, but a moderate amount of burn occurred where 1.0 pound of Kepone was combined with oil. A severe leaf burn was found only where Kepone was used with parathion and there was a tendency for the severity to increase as the dosage of either material, but especially parathion, was increased (Table 3).

Table 2. Control of citrus rust mite and russet on Valenciaorange with zineb and Kepone applied April 15-16, July 2-3, and September 14-15, 1959.

Main Treatments in Pounds per 100 Gallon[a]	Percentage of Leaves Infested With Rust Mite After Each and All Sprays			Percent Russet Fruit by January 4-7, 1960
	Apr.-June	July-Sept.	Sept.-Dec.	Apr.-Dec.[b]
None	32.2	70.0	7.2	32.2	92.8
65% zineb, 0.5	3.1	14.0	4.6	6.4	0.1
Kepone 50W, 0.5	4.7	27.1	12.1	12.6	1.4
Kepone 50W, 1.0	3.8	21.3	4.3	8.5	0.0
L.S.D. (19:1)	2.8	2.9	1.0	0.6	1.1
(99:1)	4.0	4.0	1.4	0.8	1.6

aEach main treatment used with each subprogram.
bAverage of 11 post spray mite counts.

Tests Conducted in 1960

During the spring and summer of 1960, two tests were conducted in Valencia orange groves at Lake Alfred and Haines City. One amount of Kepone was compared with single minimum dosages of Chlorobenzilate, maneb (manganese ethylene-bis-dithiocarbamate), sulfur and zineb in the Lake Alfred test, but three amounts of Kepone were compared with three amounts of Chlorabenzilate and zineb at Haines City. In both tests experimental sprays were applied after bloom in late April and repeated in combination with parathion in late July (Table 4).

At Lake Alfred the citrus rust mite population did not reach injurious levels on unsprayed trees until late June. All post-bloom sprays gave satisfactory control, but significantly fewer mites were found on trees sprayed with Kepone than on trees sprayed with maneb or zineb. Kepone was no better than Chlorobenzilate or sulfur. After the July application the citrus rust mite population increased throughout August on trees that were not subjected to miticidal spray. Control was more difficult under these conditions and although all treatments except sulfur gave satisfactory control, significantly fewer mites were found on trees sprayed with Kepone than on trees sprayed with Chlorobenzilate or sulfur. Maneb and zineb were equal to Kepone. (Table 4).

All post-bloom sprays produced satisfactory control in the Haines City tests, but citrus rust mite was not difficult to control prior to the end of June. Afer the July application, however, the mite population increased rapidly throughout August and reached maximum populations in mid-September on trees that were not sprayed with a miticide. Under these conditions, control was more difficult. Although all amounts of all three materials gave satisfactory control, there were significant differences between materials and dosages. Kepone and zineb were equally effective, but Kepone was superior to Chlorobenzilate except where both materials were used at the high amount of 2.0 pounds per 100 gallons. Furthermore, there were significantly more mites where each material was used at 0.5 pound than where the dosage was increased to 1.0 or 2.0 pounds (Table 4).

Summary

Kepone occasionally produced better control of citrus rust mite than zineb. At other times zineb was superior to Kepone, but more often than not there was no difference between these materials. In addition, it has been found that Kepone is capable of producing control equal to maneb and somewhat better than Chlorobenzilate. It is far superior to sulfur in this respect, but unlike Chlorobenzilate and especially sulfur, is extremely slow to bring citrus rust mite under control.

In the three tests in which several amounts of Kepone were compared, 1.0 pound of Kepone per 100 gallons produced longer control of citrus rust mite than 0.5 pound only in summer sprays and on the one occasion when a third application was applied in the fall. There was no difference between 0.5 and 1.0 pound of Kepone in post-bloom sprays and no advantage to 2.0 pounds in any application.

In all tests Kepone did not injure fruit or foliage when used alone or

(Continued on page 28)

Table 3. Percentage of terminal twigs with leaves damaged by combination sprays applied to Pineappleorange trees on July 2-3, 1959.

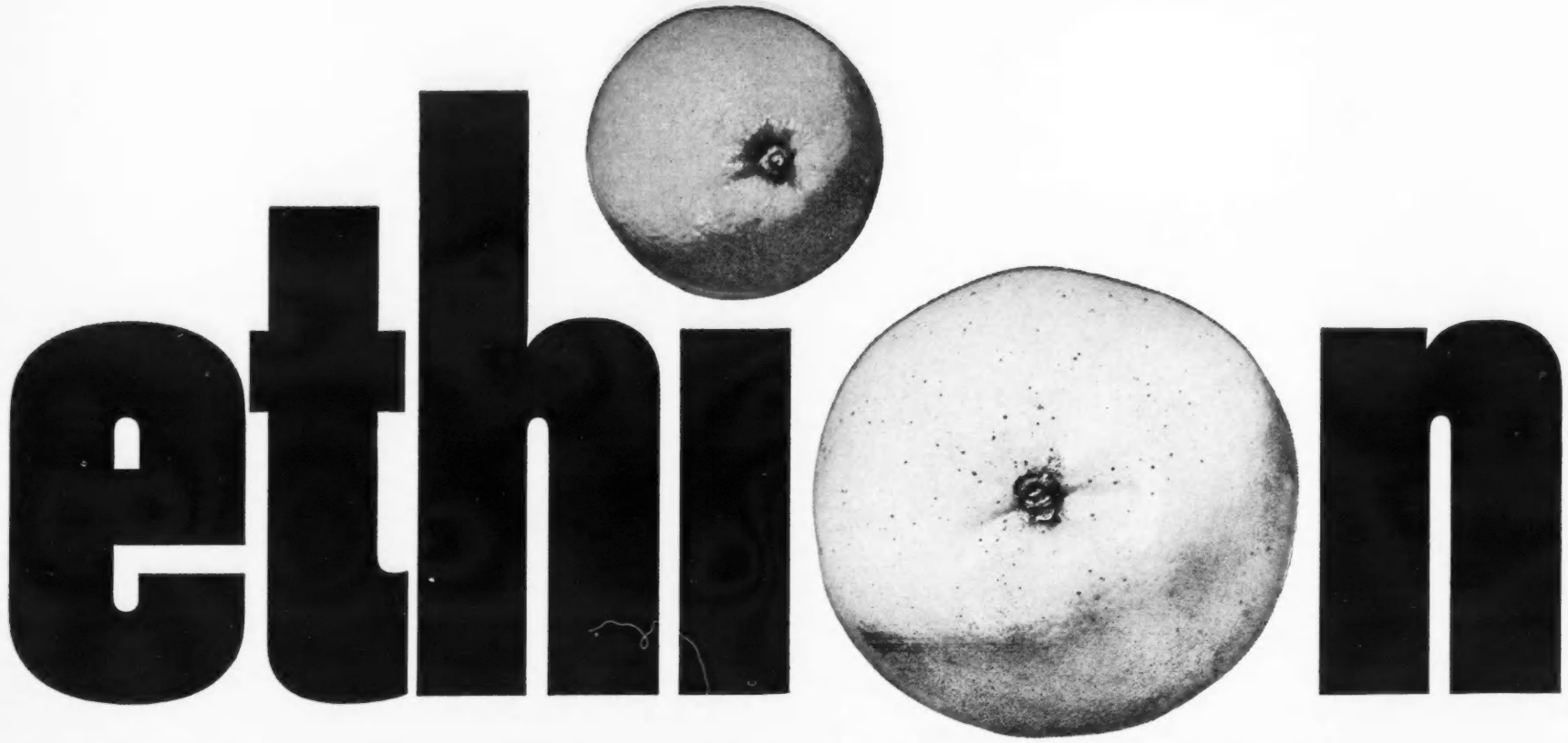
Main Treatments in Pounds per 100 Gallon	Subtreatments in Amounts per 100 Gallon					Average
	None	Parathion 25W, 10.0 oz.	Parathion 25W, 1 lb.	Parathion 25W, 10. oz. + 90% Oil, 0.5 Gal.	90% Oil 1.0 Gal.	
None	0	0	0	0	0	0.1
65% zineb, 0.5	0	0	0	0	0	0.1
Kepone 50W, 0.5	1	44	42	48	1	28.5
Kepone 50W, 1.0	12	42	63	76	19	43.5
Kepone 50W, 0.5 + 53% Copper, 0.7a	12	23	62	36	4	24.9
Kepone 50W, 1.0 + 53% Copper, 0.7a	4	24	68	57	30	36.8
Average	4.8	22.1	39.3	36.1	9.0	

aTribasic copper sulfate used at 1.3 pounds in the post-bloom spray; omitted in the fall.

Table 4. Kepone compared with zineb, Chlorobenzilate, maneb and sulfer against citrus rust mite in two experiments conducted during 1960.

Treatment in Pounds per 100 Gallon	Lake Alfreda		Haines Cityb	
	Sprayed April 20, 1960	Resprayed July 22, 1960c	Sprayed April 22, 1960	Resprayed July 26, 1960c
Kepone 50W, 0.5	1.5	--	0.4	7.7
Kepone 50W, 1.0	--	5.1	0.4	3.8
Kepone 50W, 2.0	--	--	0.9	1.8
65% zineb, 0.5	6.9	7.6	2.5	9.8
65% zineb, 1.0	--	--	1.1	1.1
65% zineb, 2.0	--	--	2.4	1.2
Chlorobenzilate 25W, 0.5	2.0	15.6	1.1	12.4
Chlorobenzilate 25W, 1.0	--	--	1.3	6.9
Chlorobenzilate 25W, 2.0	--	--	1.0	2.7
70% Maneb, 0.5	4.9	10.0	--	--
Sulfur, 5.0	3.9	23.6	--	--
Check	9.1	31.8	6.3	55.7
L.S.D. (19:1)	2.4	5.7	0.7	1.9
(99:1)	n.s.	8.1	1.0	2.6

aBased on mite counts made May 11 and 26, June 20 and July 13; and August 4 and 18 and September 1 and 16, 1960.
bBased on mite counts made May 2 and 13, June 6 and 28 and July 18; and August 2 and 22 and September 7 and 21, 1960.
cAll plots received 1.0 pound of 25% parathion per 100 gallon in July sprays.



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Florida Citrus Moved Fresh

- - - BY - - -

ZACH SAVAGE
AGRICULTURAL ECONOMIST
FLORIDA AGRICULTURAL
EXPERIMENT STATION

The current official production estimate for 1960-61 of 124.2 million boxes of Florida oranges, grapefruit and tangerines is 256 percent of the production as late as the season of 1941-42 when the crop was 48.5 million boxes. This increase took place over the short space of time of eighteen seasons. The average annual production of these three kinds of citrus during the five seasons of 1955-60 was 127.2 million boxes. This was 301 percent of the 1935-40 average of 42.2 million.

While production was increasing at a rapid rate, the amount of fruit certified for fresh shipment increased from 22,791,000 boxes in 1935-36 to 47,323,000 boxes in 1951-52. Since that time fresh shipments declined and was 31,469,000 boxes in 1959-60. This was the third lowest shipment since 1941-42. The season of 1957-58 and 1958-59 were slightly lower than 1959-60. See Table 1. The average certified per season for the 1955-60 period was 33.8 million boxes. This was an increase of 11 percent over the average of 30.6 million boxes certified for the 1935-40 epriod.

During the 1935-40 period 73 percent of the production was certified for fresh shipment. However, the rate of increase in production was so much higher than the rate of increase in the fruit certified for fresh shipment, only 27 percent of the production was certified for this purpose during the 1955-60 period. The highest proportion of production certified for fresh shipment during the 25 seasons of 1935-60 was 77.3 percent of 1935-36 and the lowest was 22.5 percent in 1958-50. At the same time, the volume certified in 1958-59 was 28.3 million boxes, or 28.6 percent more than the 22.8 million certified in 1935-36. However, the fruit certified for fresh shipment was at its lowest point in 1935-36 and that certified in 1958-59 was third lowest.

Oranges

The volume of oranges certified for fresh shipments varied over the past 25 seasons. The smallest volume was 11.6 million in 1958-59 and the largest was 32.8 million in 1943-44. In only one other season, 1946-47, was this volume as high as 30.0 million. Since 1946-47, such volume ranged from the high of 28.3 million in 1948-49 to the low of 11.6 million in 1958-59. There were 10 of the 24 seasons with the volume of oranges certified for fresh shipment more than double that certified in 1958-59. The portion certified for fresh shipment decreased from 93 percent of the crop in 1938-39 to 13 percent in 1958-59.

Grapefruit

Grapefruit certified for fresh shipment varied from 6.0 million boxes in 1944-45 to 18.9 million in 1953-54. The 10 seasons of 1950-60, 1938-39 and 1948-49 consistuted the 12 seasons when certification for fresh shipments exceeded 10.0 million boxes. The proportion of the crops so certified was 60 percent in 1935-36, decreased to the lowest point at 26 percent in 1947-48 and increased to 49 percent in 1954-55. The proportion was 46 percent in 1959-60 and the volume certified that season ranked eighth in the last 25 seasons.

Tangerines

The volume of tangerines certified for fresh shipment reached 3.4 million boxes in each of the two seasons of 1944-45 and 1954-55. The lowest such volume during the past 25 seasons was 1.6 million in the season of 1957-58. There were eight seasons when such volume was above 3.0 million. The highest proportion of the crop for fresh shipment was 91 percent in 1936-37 and the lowest 52 percent in 1958-59 and was 64 percent in 1959-60.

Fruit certified for processing will be discussed in an article for February.

Sources: Citrus and Vegetable Inspection Division, Florida Department of Agriculture, Winter Haven and Florida Crop and Livestock Reporting Service, Orlando.

Table 1. Certified Fresh Citrus Fruit Shipments in Florida by Seasons

Seasons	Grapefruit Boxes 1,000	Grapefruit Percent of Production	Oranges Boxes 1,000	Oranges Percent of Production	Tangerines Boxes 1,000	Tangerines Percent of Production	Total Boxes 1,000	Total Percent of Production
1945-1946	8,611	26.9	27,837	55.9	3,229	76.9	39,677	46.1
1946-1947	9,402	32.4	30,061	56.0	2,517	53.6	41,980	48.0
1947-1948	8,688	26.3	25,147	43.1	2,391	59.8	36,226	38.0
1948-1949	12,384	41.0	28,302	48.5	2,958	67.2	43,644	47.0
1949-1950	9,216	38.1	20,449	35.0	2,881	57.6	32,546	37.1
1950-1951	13,751	41.4	21,474	31.9	2,693	56.1	37,918	36.0
1951-1952	17,449	48.5	26,979	34.3	2,895	64.3	47,323	39.7
1952-1953	15,735	48.4	22,224	30.8	3,311	67.6	41,270	37.7
1953-1954	18,899	45.0	24,116	26.4	3,066	61.3	46,081	33.3
1954-1955	17,076	49.1	22,574	25.5	3,363	65.9	43,013	33.5
1955-1956	17,607	46.0	20,946	23.0	3,067	65.3	41,620	31.1
1956-1957	16,241	43.4	19,305	20.8	2,930	61.0	38,476	28.4
1957-1958	12,973	41.7	14,731	17.9	1,605	76.4	29,309	25.3
1958-1959	14,455	41.1	11,554	13.4	2,323	51.6	28,332	22.5
1959-1960	14,101	46.2	15,566	17.0	1,802	64.4	31,469	25.2

USDA TO BUY CANNED G'FRUIT SECTIONS FOR SCHOOL LUNCHES

The U. S. Department of Agriculture has announced an offer to buy canned grapefruit sections, packed from grapefruit of the 1960-61 crop, for use in the National School Lunch Program.

Purchases will be made with funds appropriated under the National School Lunch Act and will depend upon quantities and prices offered.

Details and specifications of the offer to purchase are now being mailed to grapefruit canners.

Florida State Fair Plans Big Citrus Exhibit

Citrus and vegetable exhibits proudly displayed by the nation's fastest growing state will take the spotlight at the 56th annual Florida State Fair in Tampa, Feb. 7-18.

Hundreds of thousands of Floridians and out-of-state visitors will view natures' miracles, combined with the knowledge of Florida's citrus growers, as large yellow, juicy oranges in assorted Valencias, Pineapple, Hamlin, Navels, Parson Brown, Temple, Lue Gim Gong, Pope Summer and others are piled high in colorful exhibits. The citrus industry will also feature grapefruit, lemon, lime, tangerines, tangelo, mandarin and other members of Florida's finest fruits.

Sharing the stage in the 22 miles of exhibits will be a variety of Florida's resources including dairy and beef cattle shows, FFA and 4-H events, horticultural displays, county exhibits, swine, poultry, rabbit and honey shows.

The 11-day spectacular will feature top grandstand attractions with a live, in-person presentation of the famous radio-TV program "Truth Or Consequences" plus a host of other celebrated acts.

Three parades and pageants will provide glitter and gaiety to the fair calender. Tampa Shriners will lead off on opening day, Tuesday, Feb. 7 for their annual fun filled jamboree. Jose Gasparilla and his jack booted buccaneers will capture the city on Monday, Feb. 13 in the colorful Gasparilla Invasion and parade. Tampa's Latin Quarter will stage the night fantasy "Caribbean Carnival" with a parade through Ybor City.

Automobile races are scheduled on Wednesday and Saturday afternoons of both weeks, with Royal American Shows, the world's largest midway, playing the full fair period.

The 13 county exhibits alone constitute an exhibition in themselves with a cross section of Florida's products of the soil.

Exhibiting counties are Columbia, Gadsden, Indian River, Volusia, Hardee, Hernando, Highlands, Hillsborough, Manatee, Marion, Pasco, Pinellas, and Polk. All promise more elaborate presentations than ever before.

FLORIDA SOUTHERN RECEIVES CASH GIFT OF $2,456

A cash gift of $2,456 has been awarded Florida Southern College for the work of its Citrus Department, it was announced by President Charles T. Thrift, Jr.

He said the gift represents the unused portion of the color certification fund which was created by Florida and Texas citrus shippers and the Food Machinery and Chemical Corp., Lakeland, to insure the continued use of the "color add process."

Started in 1954 as a protective measure, the fund was terminated this year following Congressional legislation approving continuance of the practice of coloring citrus fruits.

The gift was presented to Dr. Thrift by Howard L. Shannon of Lakeland, Florida division manager of the Food Machinery and Chemical Corp., and a trustee of the color certification fund.

EXPANDING ROLE OF TECHNICAL SERVICE REPRESENTATIVE IN PESTICIDE FIELD

The role of technical service representatives in the field of agricultural pesticides has broadened far beyond a responsibility for effective pest control. This view was expressed by Dr. Edward J. Spyhalski, manager of technical service to sales for Niagara Chemical Division of Food Machinery and Chemical Corporation, at a recent technical service managers' meeting staged by the company in St. Louis.

Says Dr. Spyhalski: "Tighter restrictions on chemical residues in foodstuffs have brought a need for greater care in pesticide programming." He points out that it is up to the technical service representative to counsel growers on method, rate and time of application and any other factors affecting residues.

In emphasizing the importance of an awareness of the complete residue picture, he cited the chain effect which residue violations could have on growers, food processors, canners, retailers, and the ultimate consumer.

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"THE FOLKS WITH
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Now is the time to start planning your spring fertilization and spraying of citrus groves . . . and the people who can best help you plan are the representatives from SUPERIOR!
WARNING! — an unwelcome visitor is back. For the first time in many years SCAB can be a serious problem to citrus growers if not controlled properly. Two applications are necessary—one as soon as the buds swell, and the second at two-third petal fall, which occurs during post-bloom time. Consult your SUPERIOR field representative for advice about this serious problem now at no obligation.
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Orange Concentrate Use Shows Steady Increase

BY JOHN DICKSON
FLORIDA CITRUS MUTUAL

Just in case you'd lost sight of the fact that frozen orange concentrate business is one of Florida's top industries consider these cold statistics:

Last season, the 1959-60 one, Americans bought $265,000,000 worth of this relatively new food-drink product.

This season, running from Dec. 1, 1960 to Nov. 30, 1961, Americans are expected to buy about $290,000,000 worth of the frozen orange juice. This is eight to 10 percent more than last season.

The figures come from a current report by Robert W. Rutledge, Florida Citrus Mutual executive vice president.

To give you an even further idea of the importance of frozen orange concentrate in Florida's economy, Rutledge estimates that 60 percent of the current season's orange crop will be processed into this product.

Most of the concentrate goes into the familiar six-ounce cans which today have become perhaps the featured item in frozen food counters and displays in just about every village, town and city in the entire country, plus Canada.

"The industry has accomplished an unprecedented sales feat—having sold its total pack of 78,000,000 gallons of frozen orange concentrate PLUS a liquidating of beginning of season inventory stocks of another seven million gallons," Rutledge said.

In a little over 10 years frozen orange concentrate has passed all other fruit and vegetable juices in the diets of U. S. families.

Anyway you look at it, Florida orange concentrate business is huge.

And again to Rutledge: "The strong demand outlook for oranges is evidenced by the fact that in the 1959-60 season, consumer purchases of frozen orange concentrate set an all-time record, both in terms of volume and dollar value."

Florida orange juice, in case you have to be reminded, is the best natural source of Vitamin C, and that's the vitamin nutrition experts say we must have every day because, for some physiological reason, we cannot store it up in our bodies like we can some of the other essential vitamins.

Mutual Seeks To Control Thefts Of Citrus Fruit

Florida Citrus Mutual, in continuing its efforts to curtail fruit thefts, is distributing a new reward sign for its grower-members, Robert W. Rutledge, Mutual executive vice president, said recently.

The new triangle-shaper sign states that a $200 reward will be paid by Mutual for information leading to the arrest and conviction of anyone caught stealing fruit from a member's grove. The sign also has room at the bottom for the grower's name.

Mutual's board of directors voted to increase the reward from $100 to $200 at the beginning of last season.

Dale Carlton, Mutual grower relations division head, said many growers have asked for new signs that made provisions for them to add their names. He said the sign Mutual previously used had still offered the $100 reward instead of the $200 reward.

See it often! See it all!

FLORIDA STATE FAIR

and Gasparilla Pirate Invasion

Come for fun! Come for thrills! See all of this Great Show Window of The Sunshine State. See elaborate displays of fresh fruits, vegetables and ornamentals. See livestock shows and sales; swine, poultry, rabbit and honey shows — plus special 4-H and FFA youth events. See International Orchid Show, Hibiscus Show, Women's Exhibits and the 15th Annual Florida Electrical Exposition.

Thrill to action-packed auto races! Have fun on the big, gay Royal American Shows midway! See it often! See it all!

SPECIAL AGRICULTURAL EVENTS

Everyone of the eleven big days of the 1961 Florida State Fair will be packed with events of special interest to growers, livestock raisers, farmers, dairymen and nurserymen. State and County exhibits . . . Table Beef Contest . . . Dairy, beef and swine shows and sales . . . Poultry and Rabbit shows . . . Fat Stock Show and Sale . . . Parades of Dairy, Beef and Swine Champions . . . FFA activities . . . 4-H Club events . . . International Orchid Show . . . Hibiscus Show . . . and many others. Don't miss a single one! See all of this Great Show Window of The Sunshine State!

SPECIAL FEATURE **NBC's**

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TAMPA FEB. 7-18 · INVASION DAY FEB. 13

Costs of Packing And Selling Fla. Fresh Citrus, 58-59 Season

BY A. H. SPURLOCK AND
H. G. HAMILTON
DEPARTMENT OF
AGRICULTURAL ECONOMICS
FLORIDA AGRICULTURAL
EXPERIMENT STATION

A. H. SPURLOCK

This report is based on the accounting records of 42 citrus packinghouses. The total packed volume handled by these houses amounted to an equivalent of 11,970,101 boxes of 1-3/5 bushels each, or approximately 42 percent of the total pack of Florida fresh citrus in 1958-59[2].

The original sample of 43 packinghouses drawn in 1952 was restricted to firms which packed primarily for commercial interstate trade. Geographic distribution of the houses and availability of cost records were also considered. An attempt has been made to include the same firms each year to prevent year-to-year cost fluctuations due to sample changes. However, changes have been necessary and several new firms have been added to replace those discontinued.

The packed volume of the 42 sample houses in 1958-59 ranged from 50,000 to 854,000 boxes of 1-3/5 bushel equivalent, and averaged 285,000 boxes. This was considerably larger than the average packed volume of all citrus packinghouses in the State. These averaged only about 161,000 packed boxes for 176 licensed and registered fresh fruit shippers[2]. The packed volume of the 42 sample houses showed an increase of 2.3 percent over the preceding season, whereas packed volume in all houses in the State decreased by 3.3 percent.

During the period since the processing industry reached a point of vital importance in citrus marketing, an increasing proportion of the fruit controlled or owned by packinghouses has been going to processing plants. This may affect fresh fruit packing costs adversely if the packed volume falls much below the normal capacity of the packinghouses. In some cases, however, the total volume controlled by the packinghouses has grown over the years so that the packed volume still may be near the optimum. In other firms the packinghouse appears to have an excess capacity, judging by packed volumes in prior years.

Packed fruit represented 43.2 percent of the total volume. Last season the packed fruit was 45.5 percent of the total volume. The packout averaged 66.2 percent of the fruit through the house in 1958-59 as compared with 67.6 percent for the preceding season. The proportion of fruit going direct from grove to cannery increased to 34.6 percent of the total fruit in 1958-59. The total volume of all fruit handled by the packinghouses increased by about 8 percent from the preceding season.

The Measurement of Costs

The primary cost data made available by the fresh citrus fruit packinghouses showed the details of the annual expenditure of each packinghouse in the sample. The total operating cost was broken down into about 33 accounts and combined into seven major categories to obtain total packing, and total packing and selling costs. Distribution of the various items of cost to each kind of fruit and each container was made by the firm's auditors in most cases.

H. G. HAMILTON

These costs were used without substantial changes in preparing the averages by containers. For the few firms included who had only total costs, allocations were made to the various containers with ratios developed for this purpose by studying packing operations in a number of packinghouses[3].

There was some variation among accountants in method or formula for allocating costs. Methods used to allocate materials cost, general and administrative and selling expenses were rather uniformly distributed, but labor and other direct operating costs were allocated by various methods. In most of the packinghouses, a proportionate share of labor for receiving and dumping, and often for grading, was allocated to the fruit graded out for canneries (eliminations).

Only 13 of the houses allocated any other class of labor to eliminated fruit. Costs for other direct operating expenses were usually allocated to the eliminated fruit at a lower per-box rate than to the packed fruit. In several of the houses the eliminated fruit was charged principally with administrative expense, the same as fruit going direct from grove to cannery. This method is based on the assumption that the packinghouse expense incident to handling the bulk fruit is incurred in order to get packed fruit.

(Continued on Page 14)

1This is a report of one phase of Southern Regional Project SM-22, "The Economic Efficiency of Marketing Florida, Puerto Rico and Texas Citrus Fruit."

2Calculated from data in 1958-59 Season Annual Report, Citrus and Vegetable Inspection Division, Winter Haven, Florida.

3"A Method of Allocating Citrus Packinghouse Costs," Agricultural Economics Mimeo Report No. 58-1, July, 1957.

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You can get bigger and better citrus yields when your trees are free of root damaging nematodes. And you can knock out those nematodes with D-D or Nemagon Soil Fumigants—help restore vigor to your citrus trees.

D-D and Nemagon are available as liquids for easy application in pressure feed or gravity flow equipment. Nemagon can also be applied as granules or mixed with fertilizer for one time-and labor-saving application. Once in the soil, D-D and Nemagon become potent gases, killing nematodes as they spread. For best results follow the instructions on the label.

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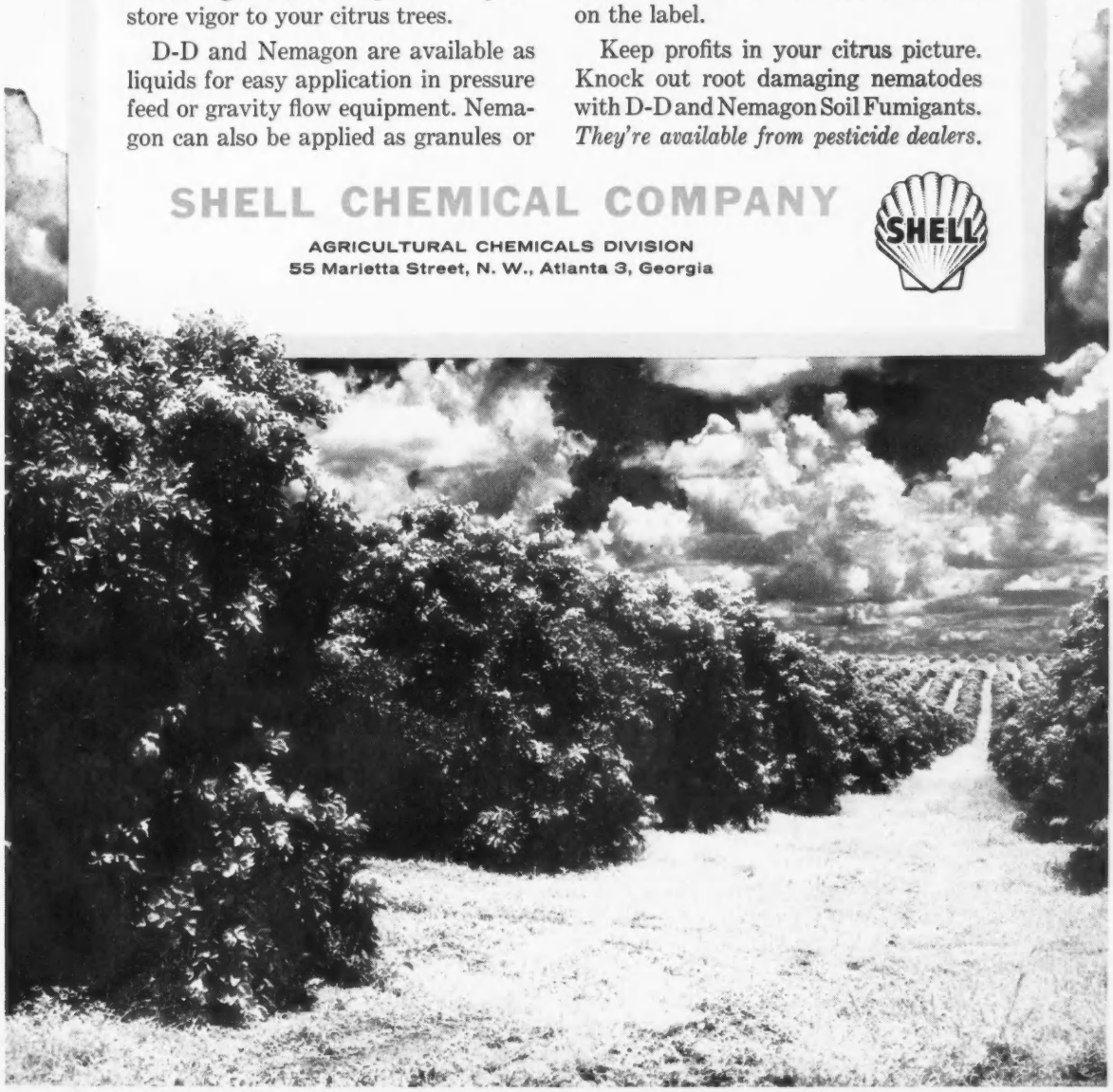

COSTS OF PACKING AND SELLING FLA. FRESH CITRUS, '58-'59 SEASON

(Continued from Page 12)

Costs of Packing and Selling, 1958-59

The 42 houses prepared a total of 53 different packs of fruit plus a mixed group of miscellaneous containers.

The 1-3/5 bushel wirebound box was the most important container used for oranges in 1958-59 from the standpoint of volume. For grapefruit, the 4/5 bushel fiberboard carton led in number of equivalent boxes with the 1-3/5 bushel wirebound box next. The 4/5 bushel boxes, including the fiberboard and the various wirebounds, were used for approximately 54 percent of both the packed oranges and grapefruit. Almost all of the packed tangerines were placed in 4/5 bushel boxes.

None of the containers were packed by all of the 42 houses in the sample. Thus, the costs shown for any container are averages of the group of firms packing that container. Since this grouping of houses changes with each container, some of the differences in costs between various packs are due to variations in the sample. This can be illustrated by comparing the container cost of the 1-3/5 bushel wirebound box for oranges and grapefruit.

For oranges 32 houses had an average container cost of $0.3914 and for grapefruit 33 houses had a cost of $0.3927, yet the container was identical for each type of fruit. Other items of cost show similar variations. The average costs shown in each category are weighted averages of the packinghouses included; i.e., the total money cost of each item for all houses is divided by the total number of boxes packed. The use of weighted averages in this summary tends to fix the cost of packing and selling somewhat lower than the simple average.

This is true because the larger houses, which usually have lower costs, have more effect on the average than smaller houses. For example, the simple average cost of packing and selling oranges in the 1-3/5 bushel wirebound box by 32 firms was $1.130, or 3.1 cents higher than the weighted average of $1.099. Twenty-one firms had total costs higher than the weighted average and 11 had lower costs.

The cost of selling includes only the expense of the firm's own sales department or sales organization. Brokerage, commission and auction charges are not included. These costs are usually deducted before entering the net proceeds of the sale on the books and can be obtained, in most instances, only by analyzing the account sales or invoices on each lot of fruit sold.

Oranges.—The average cost per box for packing and selling oranges in the 1-3/5 bushel wirebound box was $1.10. The two major expense items, materials and labor, accounted for 62 percent of the total cost. Materials expense, which included the wirebound crate, liner and label, averaged $0.41 per box. The average labor expense was $0.27.

The cost per 1-3/5 bushel box equivalent for oranges packed in the half Bruce (4/5 bu.) box was $1.44 and in the 4/5 bushel wirebound box $1.49. Packing and selling costs for the 4/5 bushel wirebound flat box were $1.55 and for the 4/5 bushel fiberboard box $1.22. Oranges packed in 8-pound mesh bags averaged $1.41 to pack and sell and 5-pound mesh bags cost $1.67. Both materials and labor costs were more per 1-3/5 bushel equivalent for the smaller bag.

The most expensive pack for oranges in common use in 1958-59 was the 5-pound mesh bag in master containers. Since it required two types of containers it had the highest materials cost and also a high labor cost. The average cost of packing and selling this pack was $2.08 per 1-3/5 bushel equivalent. The average cost of the 8-pound mesh bag in master container was $1.79.

The average cost of packing and selling oranges loaded bulk-in-truck was $0.64 per 1-3/5 bushel equivalent. This classification represented oranges sold loose in interstate trade. In general, oranges sold in bulk passed through all the packing operations that fruit packed in containers did, with the exception that after the fruit had been graded and sized it was loaded by conveyor belt directly into the truck. Some allocations of costs for cratemaking, labeling, trucking, checking and loading have been made by packinghouses to this fruit. This may be logical as long as the houses are not set up to handle bulk without slowing down the volume of other packs. When bulk-in-truck is being handled the workers in the box-supply and truck, check and load sections are not fully employed. This delay may properly be charged to bulk. Since packers are also assured of $1.00 per hour when bulk-in-truck is handled, packers may not earn this minimum on a piece-rate basis. Therefore, some houses have made a special charge for this service.

Oranges packed and sold in field boxes cost an average of $0.57 per box for five firms. Bulk oranges thru-house-to-cannery (eliminations) averaged $0.21 per box. However, there was considerable variation in practices among the houses in assigning costs to this class of fruit.

Grapefruit.—The average total cost per 1-3/5 bushel equivalent for packing and selling grapefruit was $0.97 for the 1-3/5 bushel wirebound box, 64 percent of which was material and labor costs. Packing and selling costs were $1.28 for the half Bruce (4/5 bu.) box, $1.31 for the 4/5 bushel wirebound box, $1.13 for the 4/5 bushel fiberboard box, $1.30 for the 8-pound mesh bag, $1.61 for the 5-pound mesh bag, $1.85 for the 5-pound mesh bag in master container, $1.58 for the 5-pound polyethylene bag in master container and $0.50 for grapefruit sold bulk-in-truck. Bulk grapefruit thru-house-to-cannery (eliminations) averaged $0.16 per box.

Tangerines. — The 4/5 bushel wirebound boxes were the containers in comon use in 1958-59. The 1-3/5 bushel equivalent cost for packing and selling tangerines in the half Bruce (4/5 bu.) box was $1.59; in the 4/5 bushel wirebound box $1.61; and in the 4/5 bushel wirebound flat box it was $1.60.

As with oranges and grapefruit, material and labor were the largest ex-

ORTHO®
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SPRAY
PROGRAM
1961
FLORIDA

Florida Ortho Citrus Spray Program

TIME OF APPLICATION	MATERIALS & AMOUNT PER 500 GALLONS	INSECT OR DISEASE
dormant spray (Apply between December 20 and February 10)	ORTHO Nutritional S-C-Z-Mn-B Spray No. 2 . . . . . 60 lbs. ORTHO Sodium Molybdate . . . . . 5 ozs. ORTHO Spray Sticker . . . . . 40 ozs.	Citrus Rust Mite, Scab, Melanose, Copper, Zinc, Manganese and Boron Nutrition — Yellow Spot
post bloom spray (Apply from two-thirds petal fall until fruit reaches one-half inch in diameter)	ORTHOCIDE 50 Wettable . . . . . 10 lbs. ORTHO Parathion 8 Flow Concentrate . 20 ozs. ORTHO Zineb 75 Wettable . . . . . 3 lbs. ORTHO Trithion 4 Flowable or ORTHO Ethion 4 Flowable . . . . . 40 ozs. ORTHO Spray Sticker . . . . . 40 ozs.	Fruit Set, Foliage Growth, Melanose, Scab, Black Scale, Florida Red Scale, Purple Scale, Citrus Rust Mite, Fruit Russet, Citrus Red Mite, Texas Citrus Mite, Six Spotted Mite, Aphids, Mealybugs, Fruit Worms
summer spray (Apply between July 1 and July 31)	FLORIDA VOLCK Soluble Oil Spray . . 5 gals. ORTHO Zineb 75 Wettable . . . . . 5 lbs.	Florida Red Scale, Purple Scale, Black Scale, Citrus Red Mite, Texas Citrus Mite, White Fly, Sooty Mold, Greasy Spot, Citrus Rust Mite, Fruit Russet
fall spray (Apply between October 1 and November 15)	ORTHO Tedion 25 Wettable . . . . 2½ lbs. Chlorobenzilate 25 Wettable . . . . 2½ lbs. ORTHO Spray Sticker . . . . . 40 ozs.	Citrus Red Mite, Texas Citrus Mite, Citrus Rust Mite, Fruit Russet

The 1961 ORTHO Citrus Spray Program is based on research conducted in Florida and on actual commercial citrus grower usage. Follow this program in its entirety for maximum benefits and profits. Use complete and thorough coverage.

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Yellow

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cale,
Mite,
Fly,
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Fruit

NOTES
ORTHO Spray Sticker has proven especially beneficial in sticking nutritional sprays.
In recent years, minor pests, including Aphids, Mealybugs, Fruit Worms, Black Scale, have become increasingly important to control. Parathion in the post bloom spray prevents the build-up of these pests. If preferred, ORTHO Malathion may be substituted.
Check with your local ORTHO Sales Representative for other available phytonomic oil sprays. Florida Red Scale is best controlled between July 15 and July 31. If the interval between the Post Bloom Spray and the Summer Spray is extended to an aerial application of ORTHO Trithion 4 Flowable or ORTHO Trithion — Sulfur dust formulations may be needed for control of rust mites and spider mites prior to the Summer Spray.
In groves where greasy spot is a problem, protection of the late summer-early fall flush may be necessary. ORTHO PHALTAN 50 Wettable and ORTHO Copper 53 Fungicide combined with ORTHO Spray Sticker are recommended for this use. Consult your local ORTHO Sales Representative for information on the proper rates and timing.

Other ORTHO formulations of Parathion, Trithion and Chlorobenzilate may be substituted for those shown. Consult your ORTHO salesman for additional information on specific pesticide problems.

The information contained herein is, to our best knowledge, true and accurate. Because conditions of use which are of critical importance are beyond our control, we make no warranty or representation, expressed or implied, except that all products conform to the chemical description on the label. No agent of this company is authorized to make any warranty or representation concerning our products.

When using any pesticidal product always follow directions and carefully observe all precautions on the label. Do not use rates above those shown on the label and observe minimum days between application and harvest as shown on the label. Pesticide products used contrary to directions may cause serious plant, animal or personal injury.

1961

Florida Growers enthusiastic about advantages of ORTHO Citrus Spray Program

James H. Dickinson, partner and production manager, Wardlaw Bros.- Dickinson, Frostproof, Florida, says: "We've increased production 25% and doubled quality with an ORTHO Citrus Program. We're convinced that ORTHO products are superior and have complete confidence in the ORTHO Field Service man who keeps careful check on problems in the groves and makes recommendations."

Franklin Gautier, Crescent City, Florida, says: "All ORTHO products are top quality, and I'm now using them exclusively for disease and insect control. The Company has some of the best research men in the field, and the service of their Fieldmen is comparable to having a partner in your business."

B. B. Osgood, Montverde, Florida, says: "ORTHO products and Field Service are unexcelled. I've been following the ORTHO Program almost completely in the last four years. ORTHO Field Service has proved invaluable. I have complete confidence that the right materials will be used in the groves at the right time, and that all ORTHO products are top quality."

Top quality products . . . plus all the benefits of ORTHO Field Service!

When you buy the ORTHO Citrus Spray Program you get ORTHO products specially formulated in Orlando to fit the needs of Florida growers. You also get the extra benefits of ORTHO Field Service. Your crops get scientific supervision right through harvest by Fieldmen trained to spot the trouble and prescribe the remedy. This expert Field Service, combined with the research and technical experience that go into every ORTHO product, is the reason the ORTHO Citrus Spray Program is the first choice of Florida growers who know the difference high quality products, plus good service, can make to their yields.

For the ORTHO Citrus Spray Program best suited to your special needs, call your ORTHO Sales Representative.

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ASSISTANT TO DISTRICT MANAGER			
Don Dorris	Orlando	CY 5-0451	CY 3-5295
NORTH FLORIDA BRANCH SALES MANAGER			
Cliff Sutton	Winter Garden	OL 6-2626	GA 3-2193 (Orlando)
ORTHO TECHNICAL SALES REPRESENTATIVES			
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John Nowell	Orlando		GA 4-6754
Jean Mabry	Lakeland		MU 6-4515
Randall Williams . . .	DeLand		RE 4-0599
SOUTH FLORIDA BRANCH SALES MANAGER			
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Dick Acree	Wauchula		PR 2-5461
Webster Carson . . .	Plant City		3-8351
Bill Singleton	Homestead		CI 7-2360

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pense items. The cost of the materials, which includes the crate, liner and label, was about 39 percent of the total cost; and labor was approximately 30 percent of the total cost. Bulk tangerines thru-house-to-cannery averaged $0.26 per box of the total packing and selling cost.

Direct Grove-to-Cannery Fruit and Packed Fruit Purchased.—Fruit going direct from the grove to the cannery averaged only $0.08 per box of the packinghouse expenses. There were no materials or packinghouse labor involved except that one firm had supervisory personnel for this operation on the packinghouse payroll, and three had a small amount of receiving and trucking labor.

The cost of handling packed fruit purchased averaged $0.11 per box. A small amount of checking labor was required and a portion of some of the other operating costs were charged to this operation.

Variations in Packing and Selling Cost Among Firms

Oranges.—There was considerable variation among firms in the total cost of packing and selling oranges per 1-3/5 bushel equivalent in the various containers. The packing and sellings costs of oranges for the sample are arrayed in five cent intervals for six types of containers. For the 32 firms packing oranges in 1-3/5 bushel wirebound boxes, the total packing and selling costs ranged from $0.94 to $1.46 per box with 25 firms falling within the range of $1.00 to $1.19.

Thirty-six firms packing 4/5 bushel fiberboard boxes had costs between $0.96 and $1.67 with 24 in the range of $1.10 to $1.34. Costs for the half Bruce (4/5 bu.) box varied from $1.19 to $1.86 per 1-3/5 bushel equivalent with costs for 19 of the 31 firms within the range of $1.30 to $1.54. For 4/5 bushel wirebound boxes, the range in cost was from $1.32 to $1.61 per box with 12 of the 16 firms within the range of $1.35 to $1.54.

Packing and selling costs of oranges in 8-pound mesh bags varied between $1.08 and $1.97 for 26 packinghouses of which 18 had costs between $1.30 and $1.54. For 5-pound mesh bags, the total packing and selling costs ranged from $1.46 to $2.38 for 26 firms of which 13 ranged from $1.50 to $1.79.

The variations in packing costs only among the firms were similar to the variations in packing and selling costs. The range for the 32 firms handling 1-3/5 bushel wirebound boxes of oranges was from $0.67 to $1.07. The packing cost for 21 of these firms ranged from $0.75 to $0.89.

The variation in the cost of packing oranges in 4/5 bushel fiberboard boxes for 36 firms ranged from $0.77 to $1.44 and for 25 of these firms between $0.85 and $1.09. Thirty-one houses packing half Bruce (4/5 bu.) boxes had costs varying from $0.98 to $1.56 per box with 21 firms between $1.00 and $1.24. Sixteen firms packing in the 4/5 bushel wirebound box had costs from $1.05 to $1.41 per box with 9 firms having packing costs between $1.10 and $1.24.

The spread in packing cost for 8-pound mesh bags for 26 firms was between $0.75 and $1.59 with 21 firms included within the cost interval of $0.95 to $1.24. For the 26 firms packing oranges in 5-pound mesh bags, the packing cost ranged from $1.15 to $2.00 and 18 of these firms had costs between $1.20 and $1.44 per box.

Grapefruit.—The range in grapefruit packing and selling costs among the different firms was not as great as in oranges. The 33 firms using 1-3/5 bushel wirebound boxes had costs which varied between $0.85 and $1.27 for packing and selling each box. Of these firms, 24 had costs between $0.90 and $1.09. For the half Bruce (4/5 bu.) box, 29 firms had total packing and selling costs ranging between $1.08 and $1.59.

Of these, 19 had costs from $1.15 to $1.39. Eleven firms using the 4/5 bushel wirebound box had costs ranging from $1.20 to $1.59 per box with 7 firms between $1.25 and $1.34. For the 4/5 bushel fiberboard box, 39 houses had costs ranging from $0.74 to $1.40 per box with 26 of these between $1.00 and $1.24.

The packing and selling costs for grapefruit in 8-pound mesh bags were from $1.13 to $1.87 for 24 firms with 14 firms between $1.15 and $1.34. For 5-pound mesh bags, 28 firms ranged from $1.32 to $2.30 with 14 firms falling between $1.40 and $1.69 per 1-3/5 bushel equivalent.

Packing costs only for grapefruit in 1-3/5 bushel wirebound boxes for 33 firms varied from $0.61 to $0.92. Twenty-five of these firms ranged between $0.65 and $0.79. Twenty-nine packinghouses had packing costs ranging from $0.74 to $1.27 for half Bruce (4/5 bu.) boxes with 17 of these firms ranging from $0.90 to $1.09.

The 11 firms packing the 4/5 bushel wirebound box were within the cost range of $0.94 and $1.41 with 8 of the firms falling between $0.95 and $1.04. Packing costs for the 4/5 bushel fiberboard box varied from $0.50 to $1.14 per box for 39 firms with 27 between $0.70 and $0.94.

The cost of packing in 8-pound

(Continued on Page 17)

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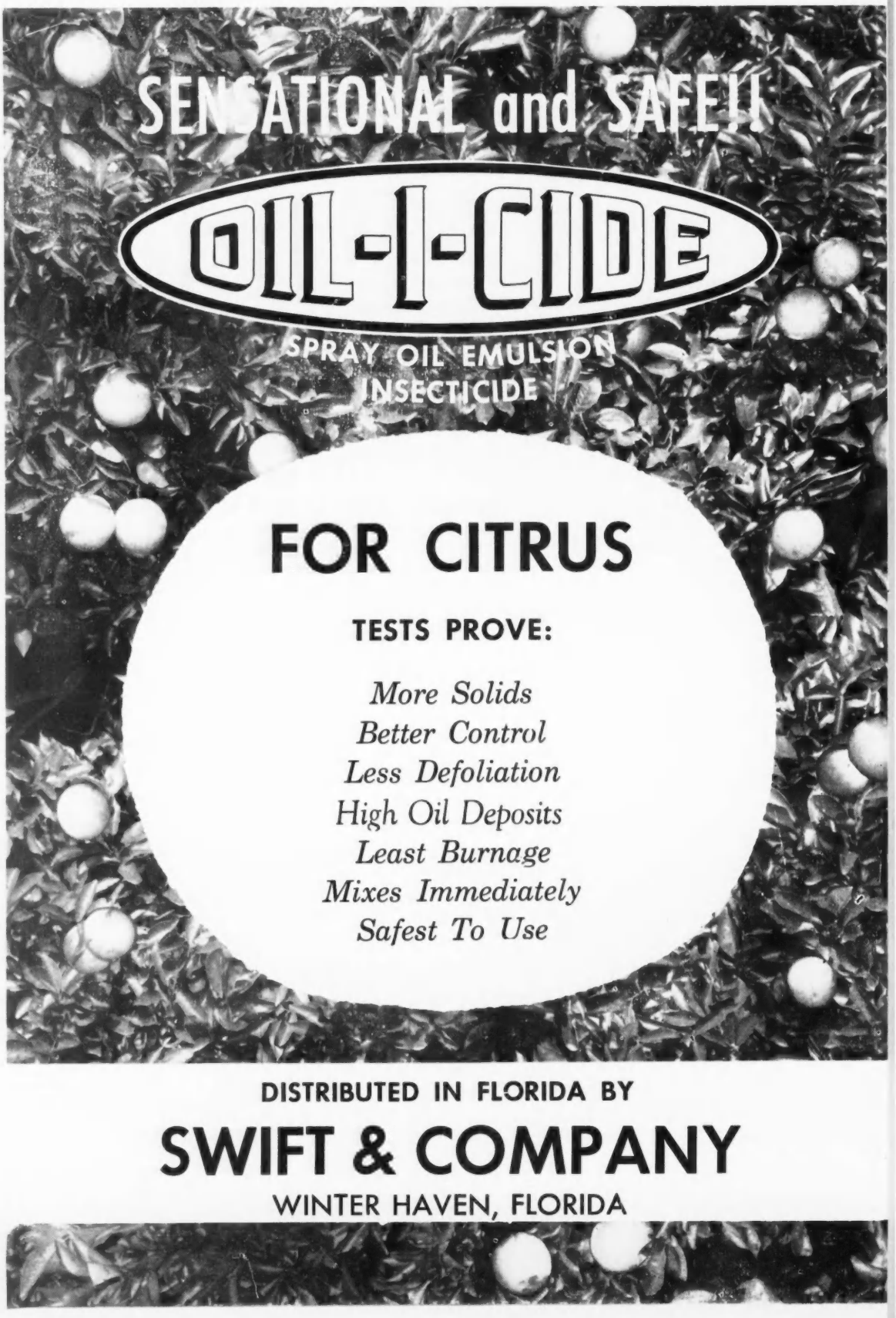

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WINTER HAVEN, FLORIDA

Jim Morton Honored By Florida Citrus Growers

James C. Morton, Superintendent of Waverly Growers Cooperative and Vice President Emeritus of Florida Citrus Mutual, received long overdue recognition by the Florida citrus industry at Lakeland on December 7, 1960. There were on hand about four hundred growers to do the honors.

Jim Morton came to Florida from Edinburgh, Scotland by way of Long Island, New York, in 1913. Since that time he has devoted, gratis, much of his time working for the citrus growers of Florida. He was one of the men who spent much time to found the Florida Citrus Clearing House in 1928. The time and work he gave to form Florida Citrus Mutual, and his devotion to this organization since its birth, is known to every Florida citrus grower.

Ten thousand growers affiliated with Florida Citrus Mutual decided to name a new addition to their headquarters for the one who had done so much to help organize and perpetuate their organization. The new addition will be known from now on as the James C. Morton Wing of the Florida Citrus Mutual building. The dedication of the James C. Morton Wing was carried out with much ceremony. A speech by W. Max Acree, Jr., President of Florida Citrus Mutual, lauded Jim for his many years of faithful endeavor on behalf of Florida citrus growers.

The christening of the new addition was accomplished by the breaking of a twenty-inch-high bottle filled with various citrus juices and suspended from the roof of the building with a cord strung with oranges, grapefruit and tangerines. The final touch was what was called a 21-gun salute that took place on the roof of the building. Bombs were exploded in the air, which shook nearby buildings and could be heard for miles around.

COSTS OF PACKING AND SELLING FLA. FRESH CITRUS, '58-'59 SEASON

(Continued from page 19)

mesh bags for 24 firms ranged from $0.84 to $1.52 per box with 16 houses between $0.95 and $1.14. Variation in cost for the 28 firms packing grapefruit in 5-pound mesh bags ranged from $0.98 to $1.95. Costs for 14 houses fell within the range of $1.15 to $1.34.

Tangerines.—Packing and selling costs for tangerines per 1-3/5 bushel equivalent ranged from $1.37 to $1.86 for 4/5 bushel wirebound boxes for 10 firms; for 4/5 bushel wirebound flat boxes from $1.34 to $1.84 for 13 firms; and for half Bruce (4/5 bu.) boxes from $1.38 to $2.04 for 14 firms.

Relationship of Seasonal Volume to Average Cost of Packing and Selling

The data indicate that there is a relationship between the seasonal volume handled by the individual house and the total packing and selling cost. In order to investigate some of the firm variation in cost, the packinghouses were divided into four seasonal volume classes based on total volume of fruit through the house (packed and bulk). The volume groups were: (1) under 200,000 boxes, (2) 200,000 to 399,999 boxes, (3) 400,000 to 699,999 boxes and (4) over 700,000 boxes.

The weighted average total cost of packing and selling oranges and grapefruit packed in the 1-3/5 bushel wirebound box was calculated for each volume group. The data showing average total packing and selling cost by volume classes, indicate roughly that houses with the larger seasonal volumes tended to have lower unit costs. However, differences in cost favoring larger houses were less pronounced this season than in some previous years.

Packinghouses in the smallest volume group had costs for packing and selling oranges in 1-3/5 bushel wirebound boxes of 11.7 cents more than the average for all the houses. Those in the largest volume group had total costs approximating the average. For packing and selling grapefruit in 1-3/5 bushel wirebound boxes, houses in the smallest volume group had costs about 5 cents per box more than the average of all houses. Packinghouses in the largest volume group had costs of 1.4 cents less than the average.

The relationship between total volume and cost is imperfect because some of the important factors affecting costs are believed to be unequally distributed in the volume groups. Some of these are length of season or number of days operated, percent of house capacity used, investment in packinghouse assets and physical arrangement of house and machinery which affect labor costs in particular. The number of different lots, frequency of change of lots, number of different containers packed and percent packout probably affect costs also to some extent. There was not sufficient information on all these factors to account for the effect of each on costs.

There were houses that had high

(Continued on page 28)

BEST GROWERS AGREE . . . GROW WITH GULF!

During this time of year, growers should follow a regular schedule of fertilization for citrus trees. Ask your Gulf Representative for expert advice on fertilizer and pesticide problems.

THE GULF FERTILIZER COMPANY

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This Country Should Be Able To Meet Its Food Needs For 1975

Don't get alarmed over the thought that the United States' population is increasing and the food supply may not be adequate in a few more years. That very possibility has concerned some people for a long time. In 1798 Thomas Malthus propounded a theory that the population would exceed the food supply. His theory was based on a limited supply of land, an increasing population, and diminishing returns from land.

The population is increasing all right, and there is only so much land. But in America waste lands have been reclaimed and productivity of cultivated acres has vastly increased, rather than receded. Hunger is known in other parts of the world, but fortunately not here.

A recent study by U. S. Department of Agriculture scientists projects the possible productive capacity of America farms to 1975 and assumes a population of 230 million by that time. Yet it concludes that there is no cause for worry, the productive capacity of agriculture will be sufficient to meet the demands.

"If a 1975 population of 230 million is assumed, along with projected maximum yields and a 10-percent increase in feeding efficiency, the same total acreage in cropland and cropland pasture equivalent that was used during 1956-57 would be more than enough to provide the 1975 requirements," says the report.

There will, of course, be shifts in production among commodities. The USDA people see less wheat acreage in this country, and increasing livestock production. More acreage in hay and pasture, as well as in cotton, is foreseen.

"In the next 15 years, our chief agricultural problems are not likely to center on producing enough food," says the report. "Rather, the problems will continue to revolve around the need for achieving desirable adjustments in resource use, both within agriculture and between agriculture and the nonfarm sectors of our economy."

U.S.D.A. PROPOSES TO AMEND FLORIDA ORANGE AND GRAPEFRUIT STANDARDS

Amended U. S. Standards for grades of Florida oranges and tangelos, and grapefruit have been proposed by the U. S. Department of Agriculture.

This proposal represents an effort to provide a more practical application of the U. S. No. 1 Bronze grade. It is proposed to amend the Bronze grade pertaining to the amount of rust mite type of discoloration required. This is a desirable discoloration.

The existing Bronze grade requires that the predominating discoloration on each fruit must be of rust mite type. Amendments in both standards would include changes to require that more than 30 percent of the fruits shall have more than one-third of the surface, in the aggregate, affected by discoloration which must be predominantly of rust mite type.

BIG GROVE PROJECT SLATED FOR INDIANTOWN

Plans have been announced by Minute Maid Corporation for conversion of a six-square-mile tract of land near Indiantown into another huge citrus grove similar to the one currently under development by the company near Fort Pierce.

According to a statement made jointly by Minute Maid and G. C. Troup, pres., of Circle "T" Ranch, Inc., Indiantown, an agreement has been signed between the two companies involving the purchase by Minute Maid of 3,840 acres located four miles north of SR 76 near Indiantown and about 18 miles west of Stuart. Purchase price was "in excess of $600,000," they indicated.

An official of the company, said Minute Maid is "extremely pleased with the location of this property, since the nearby St. Lucie Canal will furnish not only drainage but also will be an excellent source of irrigation water in the exent of prolonged drought."

Cooperative Extension Work in Agriculture and Home Economics, University of Florida, Florida State University and United States Department of Agriculture Cooperating. M. O. Watkins, Director.

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CHANGE IN PERCENTAGE CONTAINERS USED IN SHIPPING FRESH CITRUS

A major change in the pattern of container utilization for fresh Florida citrus has developed this season, according to a report just released by the Citrus-Vegetable Inspection Division of the Florida Department of Agriculture.

Use of wirebound Bruce boxes through October has shown a 14 percent increase over last year while shipments in corrugated cardboard containers have experienced a slump of more than 13 per cent, the Inspection Division indicated.

Wirebound containers have carried 74.4 percent of the fresh fruit shipped from the state through October, 1960, as compared to 60.7 percent over the same period last year.

At the same time corrugated box usage has fallen from 30.7 to 17.1 pct.

Mesh bag utilization dropped 1.3 percent from 3.6 to 2.3.

Two other containers have shown slight increases, plastic bags moving 1.2 percent of the crop for a .3 percent addition and bulk shipments moving up to 4.7 percent for a .9 percent increase.

These percentages are based on total fresh citrus movement of 1,580,044 boxes over the period, the Inspection Division reported.

Figures for October alone were virtually the same as season figures, down 13 percent for corrugated boxes and up 14 percent for wirebound Bruces. However, mesh bags recorded a two percent drop for the month, plastic bags a .1 percent gain and bulk shipments a .1 percent loss.

In only one year of the last five have wirebounds carried as large a portion of Florida's fresh citrus through October as they have this fall. In that year, 1958, it was 78 percent.

HOWARD THULLBERY RETURNS TO SUPERIOR

Howard A. Thullbery of Lake Wales, formerly sales manager of Superior Fertilizer and Chemical Company, will return to the Tampa firm as a citriculturist, effective Jan. 1, according to G. D. Sloan, president.

Active in Florida citrus circles for many years, Thullbery has served as president of both Florida State Horticultural Society and Production Managers Association.

Thullbery resigned from Superior last April to become vice-president and general manager of Swann Groves, Inc., Winter Haven.

BUT CONTROL IS VERY ESSENTIAL IN USING TRACE ELEMENTS!

When you flush a covey of quail, it takes plenty of control to wait until you get the most birds in your shot pattern.

In the use of minor trace elements, *control is absolutely essential* in two ways. First, you must not only put them in the "root pattern" but *keep them there.* Second, to prevent "burn," constant control of their release is necessary.

That is the kind of control you get with Tracel Limestone!

This high-calcium product is fortified with "F.T.E."* (Fritted Trace Elements) in a balanced formula for maximum plant nutrition, safety and economy. Since both have slow solubility, they do not leach out during Florida's heavy rains, but stay in the root zone through several growing seasons.

Tracel HI-CALCIUM LIMESTONE

Tracel limestone has another plus factor! The rate at which the minor elements are released is *scientifically controlled* to eliminate the danger of costly toxicity or "burning."

Tracel high-calcium limestone, with F.T.E., is keyed to the needs of Florida growers, cattlemen and farmers. Get the facts on this new, low-cost way to improve the quality and yield of groves, pastures and truck farms.

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Parks To Address Indian River Citrus Seminar To Be Held At Cocoa, January 12 and 13, 1961

The Indian River Citrus Seminar will be held on January 12 and 13 at the County Agricultural Building in Cocoa.

The Seminar is held each year with Brevard, Indian River and St. Lucie counties alternating as hosts. The Seminar is designed to bring to the growers of the Indian River area the latest methods in controlling diseases and insects as well as up-to-date information on production.

One of the features of the program this year will be a talk on California's mechanical handling of fruit from the grove through the packing house. This talk will be given by Mr. R. R. Parks, Agricultural Engineer, University of California, and will be illustrated with both slides and motion pictures.

The Seminar is sponsored each year by the Indian River Citrus League under the direction of the County Agents of Brevard, Indian River and St. Lucie counties, and the University of Florida Extension Service.

JANUARY 12, 1961
MORNING SESSION
9:30 A.M.

Presiding — Jimmy Oxford, County Agricultural Agent, Brevard County
Invocation — Rev. J. A. Sawyer, First Baptist Church, Cocoa
Opening Remarks ..... J. T. Oxford
The 1961 Spray and Dust Schedule — J. E. Brogdon, Assoc. Entomologist, Agricultural Extension Service
The Value of Control of Scab and Melanose — Dr. Mortimer Cohen, Asst. Plant Pathologist, Indian River Field Laboratory
Products that Compete with Fresh Citrus — Frank Arn, Director of Merchandising and Advertising, Florida Citrus Commission

RECESS

California's Approach to Mechanical Tree Fruit Harvesting — R. R. Parks, Agricultural Engineer, University of California, Davis, California
Citrus Blight — The Big Citrus Tree Killer — Dr. J. F. L. Childs, Plant Pathologist, U.S.D.A. Horticultural Station
Special announcements

LUNCHEON

AFTERNOON SESSION
1:30 P.M.

Presiding — Forrest McCullars, County Agricultuarl Agent, Indian River County
Current Status of Budwood Registration Program — Gerald Norman, in charge of Budwood Registration Program, State Plant Board, Winter Haven
Tree Girdling to Produce More Fruit — Dr. A. H. Krezdorn, Head, Fruit Crops Dept., University of Florida

RECESS

Controlling Aphids, White Flies and Sooty Mold — W. L. Thompson, Entomologist, Citrus Experiment Station
Biological Control of Armored Scale Insects — Dr. Martin H. Muma, Entomologist, Citrus Experiment Station
The Plant Board — Our First Line of Defense — Dr. W. G. Cowperthwaite, Plant Commissioner

JANUARY 13, 1961
MORNING SESSION
9:30 A.M.

Presiding — Hugh Whelchel, Jr., County Agricultural Agent, Saint Lucie County
Opening Remarks and Announcements —
Factors Affecting Fruit Quality — Wm. H. Mathews, Asst. Horticulturist, Agricultural Extension Service
Agriculture's Tax Dollars — Howard A. Thullbery, Director-at-Large, Florida State Horticultural Society
A Review of the Rootstock Situation — Dr. Mortimer Cohen, Assoc. Plant Pathologist, Indian River Field Laboratory

RECESS

U. of F. College of Agriculture — What It Offers — Dr. A. H. Krezdorn, Head, Fruit Crops Dept., University of Florida
The Citrus Experiment Station's Cold Research Program —Dr. C. H. Hendershott, Asst. Plant Physiologist
The Value of Mutual to the Indian River Grower — Dale Carlton, Director Grower Relations, Florida Citrus Mutual

LUNCHEON

AFTERNOON SESSION
1:30 P.M.

Presiding — Fred Lawrence, Citriculturist, Agricultural Extension Service
Crop Insurance — Can You Get It? — W. R. Huey, District Representative, Federal Crop Insurance Corporation, Leesburg
The Effect of Copper on Rust Mite Control — Dr. R. B. Johnson, Assoc. Entomologist, Citrus Experiment Station

RECESS

Water Management — A Symposium
Value of Deep Plowing in Land Preparation — R. S. Edsall, Grower-Production Manager, Vero Beach
Improved Water Management in Citrus Groves — Dr. R. R. Hunziker, Asst. Soil Chemist, Indian River Field Laboratory
Value of Weed Control in Ditch Bottoms — Jack T. McCown, Asst. Citriculturrist, Agricultural Extension Service
Fitting the System to the Job — Dalton S. Harrison, Asst. Agricultural Engineer, Agriculural Extension Service

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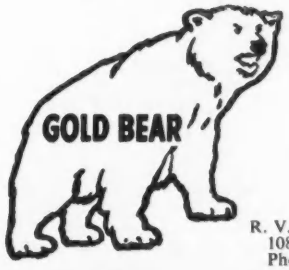
Even a moderate insect infestation can seriously damage your crop, causing you untold trouble and loss. The time to stop an infestation is before the insect population begins to build up.

Your Swift Crop Advisor is trained to anticipate insect danger in your crops. He will recommend the best control measures to use. It's to your advantage to consult your Swift Crop Advisor now. Ask him about Swift's complete one-source plant food and pesticide program.



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Reports Of Our Field Men . . .

HIGHLANDS AND POLK COUNTIES

R. E. Lassiter, Jr. & R. S. Carlin
P. O. Box 1304
Winter Haven, Fla.

Up until the time of this writing weather conditions have been mild and pleasant. Now on the anniversary date of the first freeze of 1957 we are receiving the first real cold weather of this season.

Growers in this area have been busy with irrigation. The last good rain we had was on Halloween Day. Many of the groves are holding up well in this dry weather without irrigation however.

The Rust Mite population has presented quite a problem to the growers over the past few months. Growers should continue to be on the look-out for Rust Mite and Purple Mite in their groves and not allow the populations to become too high especially in the dry weather.

The fact that our orange crop is way short this season is becoming more evident each day as the crop is being harvested. Prices are good, and we are sincerely hoping that 1961 brings much happiness and prosperity to all.

SOUTH HILLSBOROUGH, MANATEE AND SARASOTA COUNTIES

R. C. Revels, Jr.
P. O. Box 3332, Apollo Beach, Fla.

Most of this section has had an inch or more of rain in the last few days and this seemed to ease the effect of the second cold period of the month. This rain helped the citrus growers very much as it was getting very dry in most sections. Some of the growers had already begun to irrigate the groves.

At this writing there hasn't been any sign of damage to citrus by the cold in this section. Most of the groves are in pretty good condition. Some of the groves have pretty bad mite infestations which were made worse by the long dry spell.

A close watch should be kept for mites and where they are found, a recommended miticide should be applied to avoid unnecessary leaf drop from mite damage. Tedion, Trithion and Zineb are recommended for all mites. If scale is found, either Parathion or Malathion should be applied at the same time.

For the best quality fertilizer and the best field service, see your Lyons Field Representative today.

HILLSBOROUGH, PASCO AND SUMTER COUNTIES

C. W. Dean
Gibsonton, Fla.
Phone Tampa 40-2592

In traveling over our various highways, we see once again the steadily increasing number of trucks hauling our citrus from the groves to the packing houses and/or markets. This sight is welcome to the various growers. The hurricane came and dealt a damaging blow as well as the rains with the following of some 40 days without rain. The combination of these have been discouraging.

We had our first real cold some few days ago. I have seen no damage to any citrus.

I have heard a number of growers remark that this winter would be mild with very little damage to all crops. If these growers are correct, the young citrus groves that have been knocked back the last three years will certainly recover. In most groves we have found a heavy infestation of Purple, Texas, and rust mites. These should be destroyed with either a good controlling spray or dust. We want the groves to go through this winter in a vigorous condition.

SOUTH POLK, HIGHLANDS, HARDEE AND DeSOTO COUNTIES

C. R. Wingfield
Phone: Glendale 3-4537
Avon Park, Fla.

About the middle of December the winds went on a rampage but finally it brought some rain which was the first in about 40 days. Then the wind had to establish itself for a day or two from the northwest which pulled some low temperatures into this section. Fortunately it stayed high enough not to freeze but we did have frost. Very little if any damage was done to citrus and the vegetable deal in this area was over.

Fruit movements are still behind previous years however it is on the increase and after the holidays it will no doubt get into high gear. The markets are receiving our fruit well and at satisfactory prices. By this time most all groves have been fed but the growers should be busy with insect control for during the long dry period the mites of all kinds have been on an increase.

With the beginning of this New Year of 1961 I wish all of you a prosperous year.

NORTH CENTRAL FLORIDA

V. E. Bourland
Winter Garden, Fla.
Phone 107

This is the finale of a historic year (1960) as far as weather conditions, consisting of cold, windy, extreme wet followed by dry, and now the $64 question as to how cold etc., however growers are still optimistic and keeping their fingers crossed. Fruit is moving at an increased rate with very good quality, although size is small, but price is satisfactory to grower who has been very busy applying all methods to keep fruit in good condition for marketing. Most fall fertilizer application has been applied, and all groves worked, young trees all banked, and looking good except in low areas.

WEST HILLSBOROUGH, PASCO AND PINELLAS COUNTIES

Calvin P. Lloyd, III
Tampa, Fla.

The past few cold days and rain supplied us last week have colored up the fruit and brought some groves out of a slight wilt. All in all the groves look very good.

The fall fertilizer is already applied and the young trees have been banked.

The red spider and the Texas citrus mite along with the rust mite are now the most prevalent pests. Most growers have wisely applied a fall spray to avoid the damage that these pests will cause during the winter months.

Early fruit is now moving at full speed, the sizes are small, but the quality seems to be better with the cooler weather.

As your Lyons Field Representative I stand ready to help you in any way that I can, do not hesitate to call.

ADVERTISEMENT — LYONS FERTILIZER COMPANY

Uncle Bill Says:

We'd jist like to say to all of you
that our hope fer you durin'
the comin' NEW YEAR is that
it'll be jist as good as you could
hope fer, 'n if'n it is as good
as you deserve,
we're certain it will indeed
be a truly Good Year
fer you and yours.

UNCLE BILL

COSTS OF PACKING AND SELLING FLA. FRESH CITRUS, '58-'59 SEASON

(Continued from Page 17)

as well as low costs in all volume groups. This variation within groups indicates that the larger seasonal volume groups contain more houses with low costs than the smaller seasonal volume groups.

The reason for the variation in costs between types of packs can be accounted for to a certain extent by differences in labor requirements and container prices. However, this does not account for the variation in cost among firms for providing the same service. The firm-to-firm variation in costs may be associated with economies of sale, or of work methods, or a combination of both.

Trend in Packing and Selling Cost

The average total cost of packing and selling Florida citrus fruits in the most common containers has increased during the past 10 seasons with minor fluctuations.

The average total cost of oranges packed in 1-3/5 bushel wirebound boxes increased from $0.88 for the 1949-50 season to $1.10 for the 1958-59 season. The decrease in the trend of costs in 1954-55 was due to a reduction of container prices. The large increase in 1957-58 was probably due, in part, to the freeze which reduced the packed volume by 18 percent from the preceding season. Packing costs in wirebound boxes were slightly lower in 1958-59 than in 1957-58 because of volume restoration, but probably still represents an upward trend.

The 1-3/5 bushel standard nailed boxes for both oranges and grapefruit were used by too few houses in 1958-59 for the average cost to be significant. The cost of packing and selling oranges in the 8-pound mesh bag increased from $1.05 in 1949-50 to $1.41 in 1958-59 with a slight decrease in 1955-56; and for 5-pound bags the average total packing and selling cost changed from $1.26 to $1.67 during the period.

The average total cost of packing and selling grapefruit in 1-3/5 bushel wirebound boxes increased from $0.80 in 1949-50 to $0.97 in 1958-59 with declines in 1953-54, 1954-55 and 1958-59. Cost per 1-3/5 bushel equivalent for 8-pound bags increased from $0.95 in 1949-50 to $1.30 in 1958-59 and for 5-pound bags from $1.24 to $1.61.

The average total cost per 1-3/5 bushel equivalent for packing and selling tangerines increased during the 10-year period from $1.25 to $1.61 for 4/5 bushel wirebound boxes and from $1.26 to $1.60 for 4/5 bushel wirebound flat boxes

HOW EFFECTIVE IS KEPONE AGAINST CITRUS RUST MITE

(Continued from Page 7)

combined with standard dosages of tribasic copper sulfate, neutral zinc or Tedion. In one experiment, however, 1.0 pound of Kepone combined with emulsified oil produced a moderate leaf burn while Kepone plus parathion and Kepone plus oil and parathion produced a severe burn on both leaves and fruit. Since none of these materials were phytotoxic when used alone the burn was attributed to the mixtures involved, and especially the mixture of Kepone and parathion. Kepone and parathion were combined on other occasions without phytotoxic effects, however, so the injury may have been due to an incompatibility between Kepone and the formulation of parathion employed.

Kepone 50W controls citrus rust mite at dosages of 0.5 to 1.0 pound per 100 gallons of water in thorough applications made when the mites first appear. Kepone should not be used where citrus rust mite is numerous. The lower dosage is satisfactory for post-bloom, fall and winter sprays, but the higher dosage is preferable in summer sprays.

REGULAR INSPECTION URGED FOR INSECT DAMAGE

Lake Alfred research authorities warn that early winter months bring increasing danger of citrus tree damage by insects. Their control can be achieved only by regular inspections of each grove to determine when to spray and which chemical or chemicals to select for efficient relatively long lasting protection.

When controlling mites it is generally most economical to spray for more than one species. Spraying should not be delayed after about 15% of the leaves are infested with citrus red mites, the Texas citrus mite, or both.

Chlorobenzilate has demonstrated ability to control the rust mite. Should citrus red mites or Texas citrus mites become numerous, Chlorobenzilate may be used in combination with other miticides. When applied as directed, Chlorobenzilate is safe to use, non-irritating to the skin, compatible with most insecticides and fungicides, and does not result in illegal residues on fruit or citrus pulp.

Miticides should be used prior to blemishing of fruit and before leaves start to drop.

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If you're healthy, you'll probably live longer because as it's said, "an ounce of prevention is worth a pound of cure." If you're nervous, tired, rundown or stiff from rheumatism and arthritis, you can find relief as thousands of others have. *You'll find the best at The Majestic* where you can go from your room to the bathhouse in robe and slippers. Here you will find specialists who know their business—experienced attendants and masseurs for the men and masseuses for the ladies—all licensed in accordance with the regulations under the Director of the Nat'l Park Service, U. S. Dep't of the Interior.

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CROP PRODUCTION IS LARGELY CONTINUING BATTLE WITH WEEDS

The production of many crops has been and continues to be largely a battle with weeds, according to a University of Florida agronomist.

Dr. Earl G. Rodgers, agronomist with the Agricultural Experiment Stations, cited weeds as a major limiting factor in crop production while speaking to the Soil and Crop Science Society of Florida at its recent annual meeting.

"While weed species prevalent in any area are well adapted to environmental conditions," said the scientist, "crop plants lack the vigor and degree of adaptation necessary to grow and flourish in any area without the protection of man."

Weeds cost American agriculture at least an estimated four billion dollars annually. In Florida, the annual cost of weeds has been estimated to be at least 125 million dollars.

Weeds also cause increased labor and equipment costs, said Dr. Rodgers. "Roughly 16 percent of the cost of producing many crops is for tillage and cultivation and approximately one-half of that is due to the presence of weeds."

"Poisonous weeds are responsible each year in the United States for the death of animals valued at a minimum of 15 million dollars," he added.

In addition to such tremendous losses to agriculture caused by weeds, Dr. Rodgers pointed out that annual non-agricultural costs attributed to weeds amount to an estimated billion dollars per year.

Railroads, public utility companies and highway departments spend considerable sums for weed control on their right-of-ways.

"Despite such losses, some benefits may be attributed to weeds," said Dr. Rodgers. Organic matter, often containing valuable plant nutrients that otherwise might have been lost by leaching, often is added to the soil by weeds.

Some weeds, such as Florida redtop, often serve as valuable pasture and hay plants. Serving as vegetative cover, weeds frequently reduce or prevent soil erosion.

"These advantages, however valuable in their place," reminded Dr. Rodgers, "fail to compensate for the huge annual losses in agriculture caused by weeds."

He added that weed control is an integral part of crop production that must be carried out to meet the food, feed and fiber demands of today.

"Many weed problems seriously retard normal crop growth and result in depleted yields," warned the scientist.

He recommended standard tillage and cultivation be practiced for weed control purposes until a specific herbicidal treatment is developed for safe use with each crop.

"When such a safe herbicidal treatment is developed," he concluded, "its use in proper combination with older practices may be desirable to reduce the over-all cost of crop production."

REGULATION NO. 36

ADOPTION OF STANDARD BRIX AND SPECIFIC GRAVITY TABLES TO BE USED FOR THE DETERMINATION OF POUNDS SOLIDS IN CONCENTRATED CITRUS JUICES

Sec. 1. There is hereby adopted for use in the determination of pounds-solids in concentrated citrus juices by the Florida citrus industry certain tables derived from the following official sources:

1. Table 114, U.S. Bureau of Standards Circular C 440 (1942), and
2. Table 1, Bureau of Standards Publication C 457, issued in 1946.

Sec.2. An official copy of the tables adopted by this Regulation, consisting of 18 pages is on file at the headquarters office of the Florida Citrus Commission, Lakeland, Florida, and may be inspected by any interested person during business hours.

NO INSURANCE EITHER

A canny Scot was engaged in an argument with the train conductor as to whether the fare was to be twenty-five or thirty cents. Finally the conductor in disgust, picked up the Scot's suitcase and tossed it off the train just as it was crossing a long bridge. The suitcase landed in the river below with a mighty splash.

"Hoot mon!" screamed the Scot. "First you try to rob me, and now you've drowned my little boy!"

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USDA STUDIES WAYS TO EXPAND MARKET FOR FRESH DUNCAN GRAPEFRUIT

Possibilities for reversing the decline in demand for fresh Duncan white-seeded grapefruit are pointed out in a research report issued recently by the U. S. Department of Agriculture.

Production of this type of grapefruit has declined sharply. Consumers of fresh grapefruit object to the 20 to 40 seeds in the fruit, although the flavor of high-quality Duncan grapefruit is highly acceptable. Most of the crop recently has been used by canneries in making juice, sections, salad, and similar products.

Agricultural marketing Service researchers concluded that there are several ways in which this type of fruit might possibly be made more acceptable on the fresh market. These are:

1. Selection of fruit with a higher percentage of juice;
2. Elimination of lightweight fruits, which contain less juice;
3. Adjustment of requirements for solids content and for acid content or solids-to-acid ratio to desirable levels; and
4. Establishment of a maximum permissable citric acid content for individual fruits.

The findings are based on analyses of 1,200 fruits, which showed wide variations in these factors.

This study is part of a broad research program to improve efficiency, maintain quality, and expand markets for farm products.

Classified Ads

NURSERY STAKES — Galvanized Steel. New 3/16" x 30" (Standard). $35.00 per 1,000 while they last. Cauthen Grove Service and Farm Supply, Leesburg, Florida, Phone ST 7-3516.

IMMEDIATE DELIVERY, extra fine quality citrus trees, large size for resets. 2500 Pineapples, 400 Hamlins, rough lemons. Booking orders now 7M Queens June 1st, 15M Valencias, 10M Pineapples, 10M Queens rough lemon, 4M Pineapples, 3M Hamlin sour orange fall '61 or winter. WADE H. WARDLAW, Phone 3812, Box 83, Frostproof, Fla.

QUALITY CITRUS TREES For Sale. Ready for planting now. Hamlin, Valencia, Enterprise Seedless, Navels, Parson Brown ½" to ¾". All on Sour Orange Root Stock. Certified Free of Burrowing Nematode. OSCAR F. GREENLUND, Box 218, Pierson, Florida. Phone 3921.

FLORIDA'S 1961 COTTON ALLOTMENTS ANNOUNCED

The United States Department of Agriculture has announced 1961 allotments for Florida of 39,155 acres of upland cotton and 491 acres of extra long staple, according to O. P. McArthur, state administrative officer with the Agricultural Stabilization and Conservation Committee.

Of the upland allotment, 952 acres are the state's share of the national reserve.

McArthur says county and farm allotments will be announced early in December. Referenda of growers of the two staples will be held Dec. 13 to determine whether growers desire the allotments and marketing quotas for 1961.

AVAILABLE FOR IMMEDIATE DELIVERY: REGISTERED HAMLINS ON CLEO, a limited quantity of non-registered Hamlins on sour and Pineapples on lemon. All other common varieties, REGISTERED psorosis and xyloporosis free, or non-registered, on lemon, sweet, Cleo, or sour rootstock available for Fall of 1960 and Spring of 1961. Fancy varieties, both REGISTERED and non-registered also available. Write for prices. GRAND ISLAND NURSERIES, P. O. Box 906, Eustis, Florida.

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Passes well over Maturity Code Analysis by September 17th. Acids 73; Solids 11.20; Ratios 14 to 17 to 1, by October 15th; Gallons juice per box 6.00 plus. Beautiful fruits; prolific; Seedling type disease-free. Excellent flavor.

Control of this most promising fruit means high premiums.

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